

16. (Thrice amended) A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

selecting a preprepared blank of porous ceramic material having a relative density  $\rho_R$  and an achievable relative density  $\rho_s$  after sintering;

scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

determining an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_s}{\rho_R}}$$

where  $\rho_R$  is the relative density of the preprepared blank and  $\rho_s$  is the achievable relative density after dense-sintering;

enlarging the obtained data linearly in all directions by the enlargement factor (f) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

transferring the modified data to a control unit of a processing machine;

processing the blank of the preprepared porous ceramic material in the processing machine and removing material therefrom to produce a design form of the enlarged model;

dense-sintering the design form of porous ceramic material to

obtain a skeletal structure having precise end dimensions; and

facing the skeletal structure as desired to form the artificial  
tooth substitute.

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